course of the patient's serum drug concentrations during his past and future therapy. PK permits prediction and visualization of the profiles of serum drug concentrations in past dosing intervals, considering unequal doses and dosing intervals, and unequal times between dosing and blood sampling. MM dosage analysis also contains graphic displays of the uncertainties associated with the patient's therapy at any time point. Individualized target goals were selected based on comparing each patient's PK model and clinical behavior. This approach permits maximally precise individualized drug therapy for patients even when only sparse TDM data (1–3 serum levels per patient) are available. Statistical analysis showed that the mean absolute error of predicted future individual carbamazepine or valproate serum levels was less than 18% of the drug concentrations. This approach improves seizure control for many patients. It can also be used for teaching this method to medical and pharmacy students.

P.5.041 Clinical encephalographic analysis of the use of nooclerin with patients suffering from epilepsy

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Cognitive disorders constitute a large portion in the structure of epilepsy patients' psychopathological disturbances. One of the main branches of treating these disorders is the use of neurometabolic agents. The aim of this research was to evaluate the influence of nooclerin on the dynamics of clinical and EEG characteristics of epilepsy patients.

Forty-eight patients have been examined. Nineteen of them (1 group) was a group with currently active process of disease and 29 (2 group) – at the stage of remission. The length of remission constituted from 8 months to 5 years and more. Nooclerin was prescribed on the background of anticonvulsive therapy in dose of 10 ml/24 hours, twice a day for 30 days. EEG registration was held before the beginning of the therapy and at 3, 14 and 30 days of treatment.

The results of the therapy showed that there was an improvement in cognitive functions with the majority of both groups: concentration, stability of attention, retentional characteristics of memory, ability to learn increased. The medicine did not make seizures more frequent and did not change their structure in the first group. Also it did not cause the renewal of seizure in the second group.

EEG dynamics under the influence of nooclerin showed that in both groups (but more distinct in the second group) there was a tendency to more precise formation of zonal differentiation, the increase of reactivity index to functional emotional stress as well as reconstruction of main alpha-range rhythm in the form of intensification of the –11 Hz zone. At the same time none of the patients of the second group had an increase of discharge activity, appearance of characteristic epi-complexes or aggravation of local pathological signs.

So, treatment by nooclerin has a good effect on the state of cognitive functions without making fits more frequent and does not break up the remission. EEG data are evidence of the optimization of frequency characteristics and special organization of the main rhythm without increasing the intensity of pathological signs.

P.5.042 Enhancement of the activity of antiepileptic drugs in combination with mexidol

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Mexidol (2-ethyl-3-methyl-3-hydroxypiridine succinate), medicine with pronounced antioxidant and membranotropic properties as well as anxiolytic, antihypoxic, anticonvulsant and neuroprotective activities, was approved both in experimental and clinical conditions [1]. This study was undertaken in order to clarify whether mexidol was able to change the effect of the known anticonvulsants carbamazepine (C), depakine (D), phenobarbital (Phb) and phenitoine (Ph) on the formation of the epileptic system. Experiments have been performed on randomly bred white male rats with electrodes implanted into cortical and subcortical structures. Chronic bipolar recording electrodes were implanted in the sensomotor cortex of right and left hemispheres, the caudate nucleus, the hippocampus of the right and left hemispheres and the hypothalamus. EEG was recorded before the administration of the drug (i.p.) and 60 and 120 min after it. Computed EEG processing was performed using the "BRAINSYS" program. The EEG analysis of epileptiformic activity dynamics allows to evaluate which of the brain structures plays a leading role at various steps of epileptic system development, and how these processes are affected by the above mentioned anticonvulsants. The peculiarities of the effects of various combinations of anticonvulsants plus mexidol on the

primary-generalized (caused by bemegride), focal (cobalt-induced epileptogenic focus in sensomotor cortex of the left hemisphere) and secondary-generalized forms of epilepsy have been revealed. Mexidol ability to enforce the anticonvulsant action of C, D, Phb, Ph and to diminish their side effects (sedation, amnestic symptoms and etc.) has been demonstrated. Thus the drugs' effect on epileptiform paroxysmal activity of rats with cobalt-induced epileptogenic focus depended on the stage of development of epileptic system and the degree of secondary foci predominance. These data can be considered as the experimental basis for the clinical usage of anticonvulsants in combination with mexidol.

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P.5.043 Changes in lymphocytes functional activity as an indication of the epileptic preconvulsive status

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Objective: The purpose of this research was to study lymphocytes functional activity among patients with epilepsy.

Methods: Lymphocytes metabolic activity was studied by the MTT-TEST [1] on the index of metabolic activity after the addition of mitogenes (PHA) to the peripheral blood lymphocytes of patients with epilepsy. Statistical data processing was carried out by the Student t-test.

Results: An increase of lymphocytes metabolic activity was found among the patients with epilepsy (36 persons) after PHA lymphocytes stimulation, with a simultaneous decrease of the spontaneous metabolic activity in comparison with the control data (15 persons). Some patients with epilepsy (21 persons) had generalized attacks as convulsive reactions on the day of sampling. Those patients showed the highest values of the PHA-induced metabolic activity and the lowest values of the spontaneous activity of lymphocytes.

Lymphocytes spontaneous and PHA-induced metabolic activity among the patients with epilepsy

	Group	Reaction index	
		PHA	Spontaneous activity
1	Control	2.20±0.17	0.196±0.009
2	Patients with epilepsy, General group	3.25±0.36*	0.139±0.010*
3	Presence of attacks	4.21±0.53*	0.127±0.020*
4	Absence of attacks	2.49±0.26**	0.143±0.011*

Notes: *$p < 0.05$ in comparison with control; **$p < 0.05$ in comparison with the general group.

Conclusions: The obtained results demonstrate the presence of the humoral signal of the epileptic preconvulsive status and specific interaction between the nervous and the immune systems of this pathology. These data can be used for controlling the efficiency of the epileptic medicinal therapy.

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P.5.044 Psychological features of patients with migraine

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Purpose: finding out psychological features of patients with migraine. I.I. Rucetski defines pain as "a peculiar mental condition, a mental experience caused by a local irritation of the nervous system", and points at its two properties – "the sensation as it is and its emotional foil". Pain is always accompanied by some emotional deviations, and a sensation like this cannot be called pain if there are not any negative emotions while the touch conductors or receptors are being damaged. The study of personal features of patients with migraine is important because of a number of reasons. On the one hand, a headache in itself causes neuroticism or exaggeration of psychological features. On the other hand, because a great number of therapeutic agents and manipulations are applied, one should keep the actual psychological condition of the patient in mind.

Methods: the psychological testing was conducted by means of Russian edition of the MMPI. 45 patients with migraine without aura were surveyed.